

Remarks on the genus *Metriomantis* Saussure & Zehntner and descriptions of two new species and a new genus: *Rehniella* gen. n. (Insecta Mantodea).

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Remarks on the genus *Metriomantis* Saussure & Zehntner and descriptions of two new species and a new genus: *Rehniella* gen. n. (Insecta Mantodea). - The constitutive members of *Metriomantis* Saussure & Zehntner are re-examined. The genus includes six species: *M. cupido* Saussure, *M. ovata* Saussure & Zehntner, *M. paraensis* Giglio-Tos, *M. pilosella* Giglio-Tos, *M. occidentalis* n. sp. and *M. boliviana* n.sp. A new genus, *Rehniella*, is proposed for *Metriomantis planicephala* Rehn. *Metriomantis amplipennis* (Stål) is re-assigned to *Photina*. *Metriomantis pilosa* Chopard is a junior subjective synonym of *M. ovata*.

Key-words: Systematic - Mantodea - Mantidae - Photininae - neotropics.

INTRODUCTION

The genus *Metriomantis* Saussure & Zehntner, 1894 is one of the poorly known American mantids. Eight species were described from neotropical rain-forest (Fig. 1). They are known from few specimens, and some in one sex only. Therefore, the species definitions of older authors lack detail. A study of a large number of specimens of *Metriomantis*, including type material of *Metriomantis cupido* Saussure, 1869; *Metriomantis ovata* Saussure & Zehntner, 1894; *Metriomantis planicephala* Rehn, 1916; *Metriomantis gracilicollis* Beier, 1931 and a cotype of *Metriomantis pilosa* Chopard, 1912 provided new information on the group.

MATERIALS AND METHODS

The material examined is deposited in the following institutions: Muséum d'histoire naturelle de Genève (MHNG); Academy of Natural Sciences of Philadelphia (ANSP); Muséum National d'histoire naturelle Paris (MNHN); Zoologische Staatssammlung Munich (ZSM); Pontificia Universidad del Ecuador, Departamento de Biología y Museo (QCAZ); Facultad de Ciencias, Universidad de la Republica de Montevideo (FSRM); Zoologisches Museum Hamburg (ZMH).

Drawings were made using a Leica MZ8 stereomicroscope and camera lucida. Anatomical terminology follows SNODGRASS (1935), except for the male genitalia that follows LA GRECA (1954).

SYSTEMATICS

Saussure & Zehntner erected the genus *Metriomantis* for *Cardioptera cupido* Saussure, 1869 presumably from Brazil; and described *Metriomantis biramosa* from Brazil and *Metriomantis ovata* from French Guyana (Cayenne). The descriptions of these species were based a single female each. Five additional species were described subsequently: *M. pilosa* Chopard, 1912 from French Guyana, *M. pilosella* Giglio-Tos, 1915 from Guyana, *M. paraensis* Giglio-Tos, 1915 *M. planicephala* Rehn, 1916 and *M. gracilicollis* Beier, 1931 from Brazil. GIGLIO-TOS (1927) included following species: *M. cupido*, *M. ovata*, *M. pilosa*, *M. pilosella*, *Photina amplipennis* Stål, 1877 and *Photina breviceps* Stål, 1877 from Brazil. He transferred *M. biramosa* to *Photinella* Giglio-Tos, and did not mention *M. planicephala*. BEIER (1935) considered *Metriomantis* as a subgenus of *Photina* Burmeister, 1838 and included following species: *M. cupido*, *M. ovata*, *M. amplipennis*, *M. pilosa*, and *M. paraensis*; he transferred *M. breviceps* and *M. gracilicollis* to *Hicetia* Saussure & Zenthner, 1894, the latter species as a synonym of *Hicetia goeldiana* Saussure & Zenthner. Recently TERRA (1995) followed the classification of BEIER (1935).

As regards the downgrading of *Metriomantis* to the level of sub-genus, it is my opinion that *Metriomantis* must be maintained at the genus level because it has particular features that distinguish it clearly from *Photina*. These characteristics in the males concern: a great slenderness of the pronotum, the presence of six spines plus apical spine at the external margin of the anterior femora, the presence of long dense pubescence on the middle and posterior legs and the different shape of the copulatory apparatus.

A study of the type material of *M. breviceps* and *M. gracilicollis* (ZSM), showed consistence with BEIER (1935). Both species share with members of *Hicetia* Saussure & Zehntner a slender pronotum, very transverse frontal shield and lack of long hairs on the middle and posterior legs.

A large series of 30 specimens (ANSP) of both sexes, from French Guyana, British Guyana, and Brazil, certainly conspecific since they do not show conflicting differences between sexes, some of them were collected in the same locality (Kartabo in British Guyana) and at the same time, was compared with a male cotypus of *M. pilosa* (ANSP) and the female holotype of *M. ovata* (MHNG): the male specimens possess the characters of *M. pilosa*. (Figs 16, 18, 19, 22, 23, 24, 25, 27); the female specimens have the characters of *M. ovata* (Figs 12, 14). Thus *M. pilosa* is a junior subjective synonym of *M. ovata*, **syn. nov.**

Metriomantis planicephala Rehn, 1916 has not been mentioned since described. The type material (ANSP) and additional specimens I have examined exhibit following diagnostic characters: a stocky shape of the pronotum (Fig. 31), the presence of small pronotal tubercles, and the copulatory apparatus as in Figs 32, 33, 34. These charac-



FIG. 1

Geographic distribution of the species of the genus *Metriomantis* Sauss. & Zehnt.: ● *M. occidentalis* sp. n.; ▲ *M. paraensis* Giglio-Tos; ■ *M. boliviana* n. sp.; ☆ *M. cupido* Sauss.; □ *M. pilosella* G-Tos; ★ *M. ovata* Sauss. & Zehnt.

ters are distinctive from *Metriomantis*, therefore it is necessary to erect for this species a new genus *Rehniella* n. gen..

In 1887 STÅL based *Photina amplipennis* on a female from Brazil, characterised by the presence of six spines on the external margin of anterior femora, it was initially assigned to *Cardioptera vitrea* by SAUSSURE (1871). GIGLIO-TOS (1927) transferred this species to *Metriomantis*, described the male (from Bolivia) which differed from the holotype by the presence of six spines plus an apical one rather than five spines. Thus *M. amplipennis*, with five external femoral spines, is a member of *Photina*. The male, misidentified by Giglio-Tos as *Metriomantis amplipennis*, is likely a member of *Photinella* Giglio-Tos because it shares with members of that genus a shorter pronotum, the shape of the copulatory apparatus (Fig. 29) and the absence of dense pubescence on the middle and hind legs.

In conclusion, the genus *Metriomantis* includes with certainty the 6 following species: *M. cupido*, *M. ovata*, *M. paraensis* and *M. pilosella*, and two new species described below.

***Metriomantis occidentalis* sp. n.**

Figs 1, 2, 3, 9, 13, 17, 26

Holotype, male: Ecuador, Station Yasuni 400 m (Napó), 23.9.1995 (leg. E. Baquero, F. Maza, QCAZ).

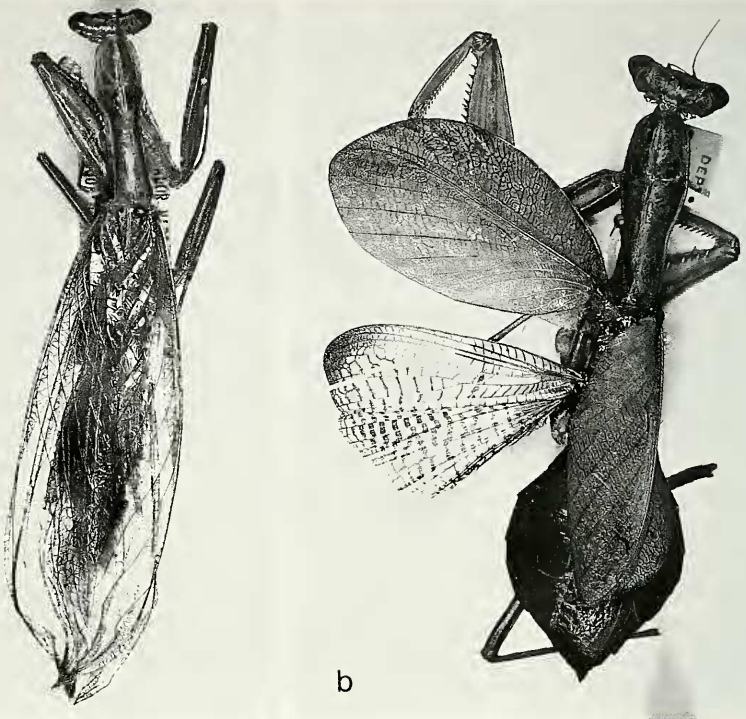


FIG. 2

Metriomantis occidentalis sp. n.: a, male holotype; b, female allotype.

Allotype, female: Colombia (MNHN).

Additional material examined: Ecuador, Loreto (Napó) 15.3.1996, 1 male (leg. Lombardo, coll. author).

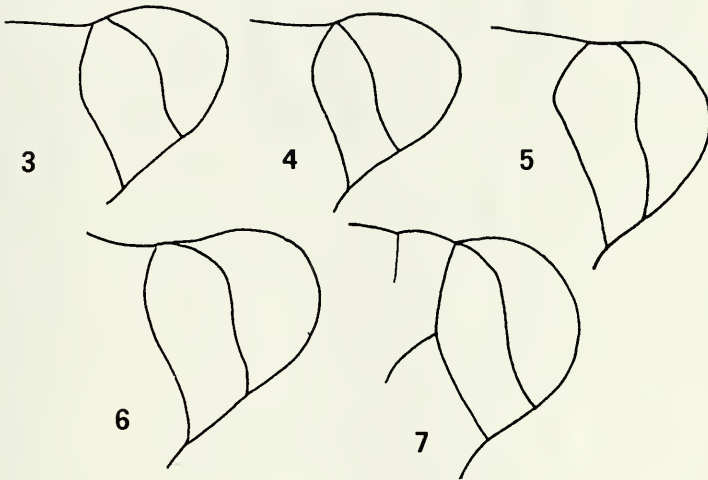
DIAGNOSIS

Rather slender in appearance, uniformly green. Head with oblong eyes. Middle and hind legs with long pubescence, male copulatory apparatus with long narrow process at anterior right margin of ventral phallomere.

DESCRIPTION

Holotype

Head- about 1.7 times as wide as pronotal supracoxal dilatation; fastigium of vertex curved upwards, with big, ovoid eyes (Fig. 3); frontal shield transverse, pentagonal, with upper margin forming obtuse angle; antennae long, with short pubescence at apex of each segment. Maxillary and labial palpi ochraceous, with black inner surface of last segment.



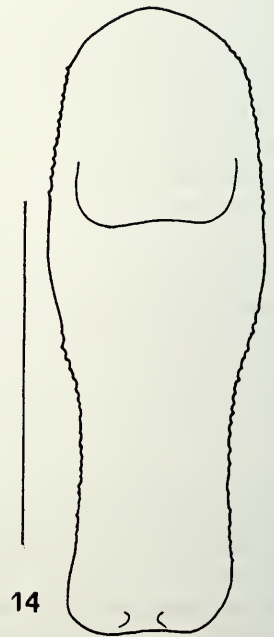
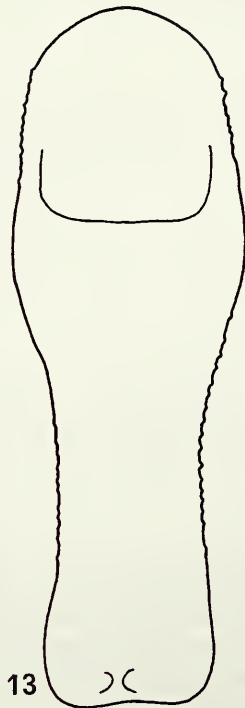
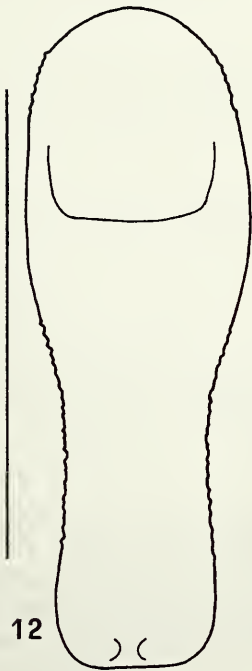
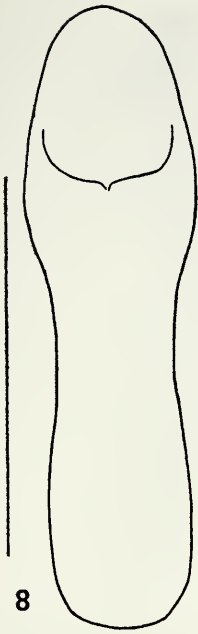
FIGS 3-7

Head of the male of: 3, *M. occidentalis* sp. n.; 4, *M. boliviana* sp. n.; 5, *M. ovata* Sauss. & Zehnt. from Santarem, French Guyana; 6, *M. pilosa* Chop. cootypus; 7, *R. planicephala* (Rehn).

Thorax- pronotum (Fig. 9) ochraceous, moderately elongate, about 5 times as long as its minimum width; lateral margins smooth; supracoxal dilatations elliptical and not marked; metazone/prozone ratio: 2.4. Anterior legs ochraceous: anterior coxae about 0.68 time as long as pronotum, prismatic with triangular section; with smooth internal margins; internal apical lobes divergent. Anterior femora long, about 4 times as long as maximum width; superior margin smooth; external margin with 6 ochraceous spines with black apices; internal margin with 16-18 spines of which the larger ones have inner dark surface in the holotype, while in the other male specimen they have only black apices. Anterior tibiae ochraceous with 15 external spines and 18 internal spines. Mid and hind legs moderately slender, with long dense soft pubescence. Metatarsi longer than combined total length of other segments. Hind wings well developed, extending well beyond abdominal apex. Tegminae hyaline, with green veins, 3.46 times as long as their maximum width; costal area moderately narrow, with veins parallel.

Abdomen- cylindrical and covered with soft pubescence. Supranalplate triangular. Cerci long and cylindrical, subgenital plate oval and with two well developed styles.

Copulatory apparatus- well sclerotized; ventral phallomere (Fig. 17) oval, longer than wide, without distal process but with long narrow process at anterior right margin. Ventral lamina of left phallomere (Fig. 26) with strong process, projecting down; phalloid apophysis not well developed.



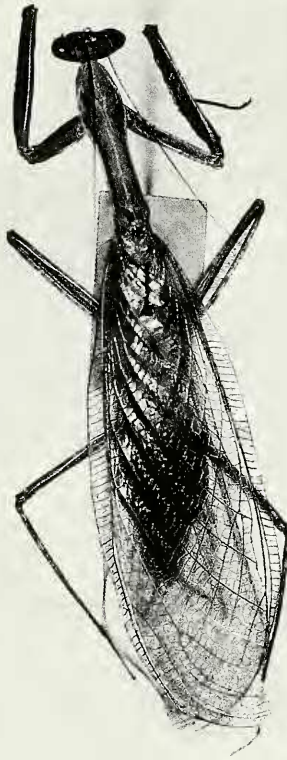


FIG. 15
Holotype of *M. boliviana* sp. n.

Measurements (in mm).- Length body 49; width of head 7.3; length of pronotum 14.8-15.2; length of prozone 4.4; width of supracoxal dilatation 4-4.3; minimum width of pronotum 2.8-3.2; length of fore coxae 10.1; length of fore femora 13; length mid femora 15; length mid tibia 11; length hind femora 16; length hind tibia 14; length tegminae 45.

Allotype

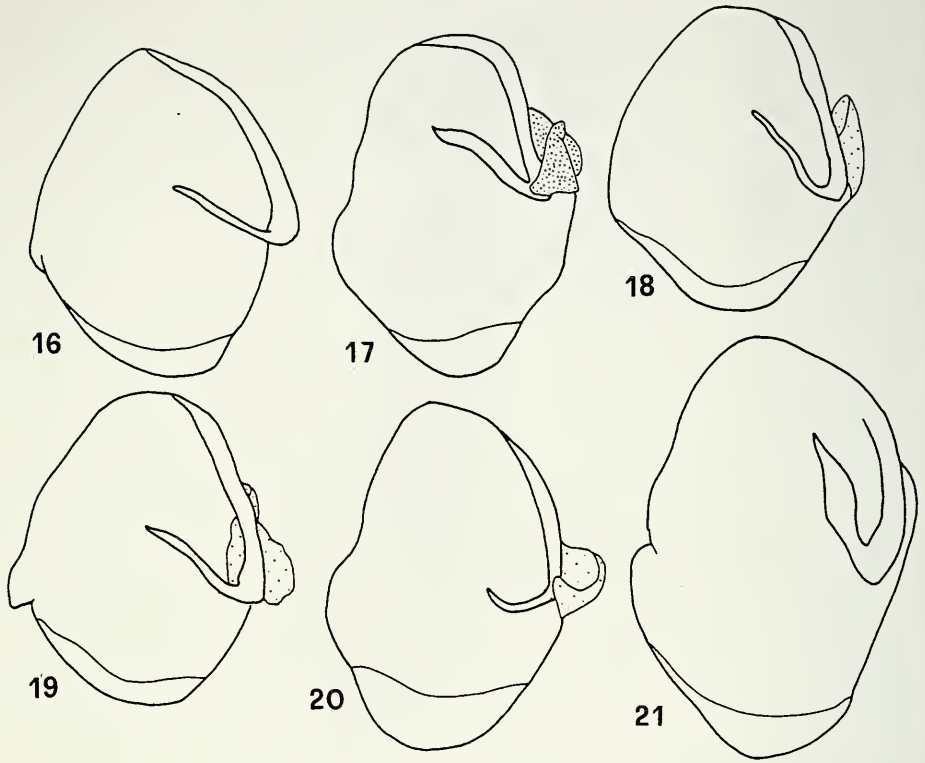
Head- very similar to that in male, broad, 1.56 times as wide as pronotal supracoxal dilatation; eyes oval; vertex curved; frontal shield transverse.

FIGS 8-11

Pronotum of the male of: 8, *M. boliviana* n. sp.; 9, *M. occidentalis* n. sp.; 10, *M. ovata* Sauss. & Zehnt. from Santarem, French Guyana; 11, *M. pilosa* Chop., cootypus. Scale bars = 5 mm.

FIGS 12-14

Pronotum of the female of: 12, *M. ovata* Sauss. & Zehnt., typus; 13, *M. occidentalis* sp. n.; 14, *M. ovata* Sauss. & Zehnt. from Kartabo, British Guyana. Scale bar = 5 mm.



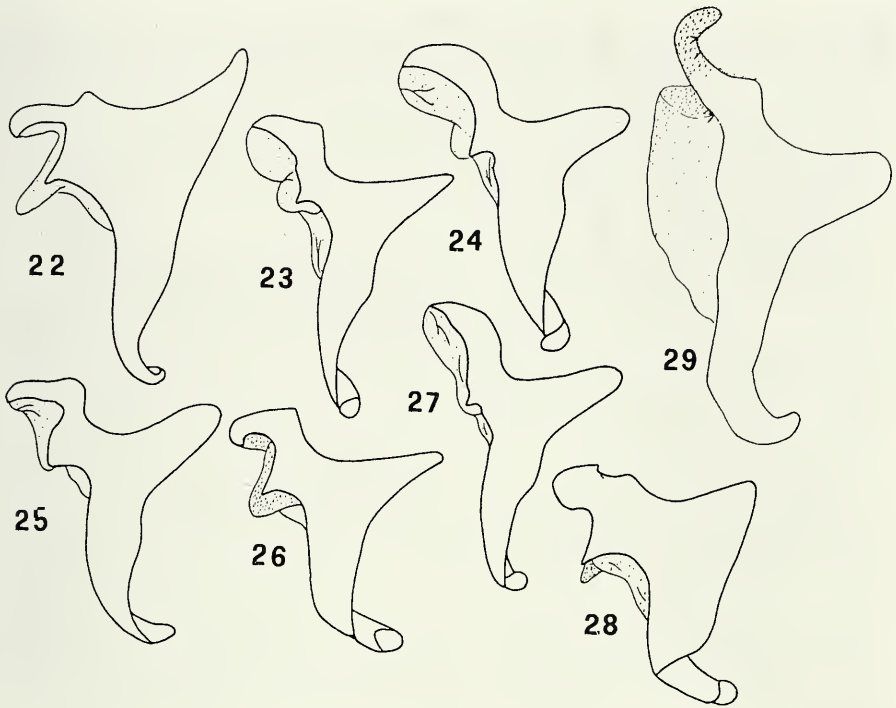
FIGS 16-21

Ventral phallomere of: 16. *M. ovata* Sauss. & Zehnt. from Santarem, French Guyana; 17. *M. occidentalis* sp. n.; 18. *M. ovata* Sauss. & Zehnt. from Carvoeiro, Brasil; 19. *M. ovata* Sauss. & Zehnt. from Kartabo, British Guyana; 20. *M. pilosa* Chop. cootypus; 21. *M. boliviana* sp. n..

Thorax- pronotum (Fig. 13) robust, 4.7 times as long as its minimum width; supra-coxal dilatation not well developed; lateral margins with small teeth. Anterior legs robust and ochraceous; anterior coxae 0.77 times as long as pronotum, with small tubercles in internal margins. Anterior femora about 3.7 times as long as maximum width. Wings well developed, not reaching the abdominal apex. Tegminae green, oval, curved at apex; costal area about 0.6 times as wide as discoidal area. Meta-thoracic wings longer than the tegminae; transversal yellow strips present at level of transversal veins of discoidal area. Middle and hind legs without pubescence.

Abdomen- ochraceous; supranal plate triangular with acute apex.

Measurements (in mm).- Length body 52; width of head 9.2; length of pronotum 16.8; length of prozone 5.8; width of supra-coxal dilatation 5.6; minimum width of pronotum 3.8; length of fore coxae 13; length of fore femora 15.5; length mid femora 17; length mid tibia 15; length hind femora 18; length hind tibia 16; length tegminae 28.



FIGS 22-29

Ventral lamina of the left phallomere of: 22, *M. pilosa* Chop. cootypus; 23, *M. ovata* Sauss. & Zehnt. from Kartabo British Guyana; 24, *M. ovata* Sauss. & Zehnt. from Carvoeiro, Brasil; 25, *M. ovata* Sauss. & Zehnt. from Santarem, French Guyana; 26, *M. occidentalis* sp. n.; 27, *M. ovata* Sauss. & Zehnt. from Oyapok, French Guyana; 28, *M. boliviana* sp. n.; 29, *Photinella brevis* (Rehn) from Bolivia.

Metriomantis boliviana sp. n.

Figs 1, 4, 8, 15, 21, 28

Holotype, male: Bolivia, Region Chapare, 28.8.1945 (leg. Zischka, ZSM).

Paratype, male, same data as holotype.

Additional material examined: Bolivia, R. Japacani 1 male (leg. J. Steinbach, ANSP).

DIAGNOSIS. Similar in colour and shape to *M. occidentalis*, but with eyes less acute and shape of the copulatory apparatus different.

DESCRIPTION

Holotype

Head- about 1.86 times as wide as pronotal supracoxal dilatation; fastigium of vertex moderately curved upwards; ovoid eyes with a moderately acute apex (Fig. 4). Frontal shield transverse, upper margin moderately curved; antennae long, with short pubescence at apex of each segment; maxillary and labial palpi ochraceous with a shiny dark strip on their inner surface.

Thorax- pronotum (Fig. 8) ochraceous and rather elongate; about 5 times as long as minimum width; lateral margins smooth, supracoxal dilatation oval; metazone/prozone ratio 2.45. Anterior legs ochraceous and robust: anterior coxae about 0.72 times as long as pronotum, prismatic with triangular section, with smooth margins and divergent internal apical lobes. Anterior femora 4 times as long as maximum width; anterior margin smooth; external margin with 6 ochraceous spines with black apex; internal margin with 14 spines, of which those big with black inner surface. Anterior tibiae ochraceous with a horizontal black line and with 14-15 external spines and 18 internal spines. Mid and hind limbs well developed, delicate in appearance, and as former species with long dense pubescence. Wings well developed, extending well beyond abdominal apex. Tegminae hyaline, with green veins, about 3.60 times as long as their maximum width; costal area narrow, with veins parallel.

Abdomen- abdomen cylindrical, with long soft pubescence; supranal plate triangular; subgenital plate large, with two well developed styles; Cerci long and cylindrical.

Copulatory apparatus- copulatory apparatus well sclerotized: ventral phallomere oval (Fig. 21) without distal process, but with a long anterior process, larger at about half its length and with an acuminate apex. Ventral lamina of left phallomere (Fig. 28) with a well developed anterior process; phalloid apophysis not well developed.

Measurements (in mm): Length body 53-55; width of head 6.9-7.3; length of pronotum 15; length of prozone 4.2-4.3; width of pronotum supracoxal dilatation 3.8-4.3; length of fore coxae 10.4-10.7; length of fore femora 11.8-12.2; length mid femora 14-15; length mid tibia 11-12; length hind femora 14-15; length hind tibia 12-13; length tegminae 43-45.

REMARKS: *Metriomantis boliviana* is very similar to *M. occidentalis*, but differs in the following characters: the eyes are less acute, the lateral margins of the prozone are more rounded and the shape of the copulatory apparatus is distinctive. These two new species may be distinguished easily from *M. ovata* and *M. pilosa* by shape of the pronotum (Figs 8-14), genitalia (Figs 16-28) and oblong eyes (Figs 3-7).

Rehniella gen. n.

Figs 7, 30, 31, 32, 33, 34

Type species. *Metriomantis planicephala* Rehn, 1916

Etymology. Dedicated to J.A.G. Rehn for her contribution to the knowledge of Mantids.

Diagnosis. Rather stocky in appearance, uniformly green. Head with rounded eyes. Tegminae with the opaque costal area. Middle and hind legs with dense long pubescence. Copulatory apparatus with ventral lamina of left phallomere with a long narrow lateral process.

DESCRIPTION

Head- Head moderately broad, with rounded eyes (Fig.7). Frontal shield pentagonal.

Thorax- pronotum robust (Fig. 30), rather short and enlarging in front; dorsal surface with tubercles, bigger in female; lateral margins smooth in the males and denticulate in the female; supracoxal dilatation is not well developed. Anterior legs robust:

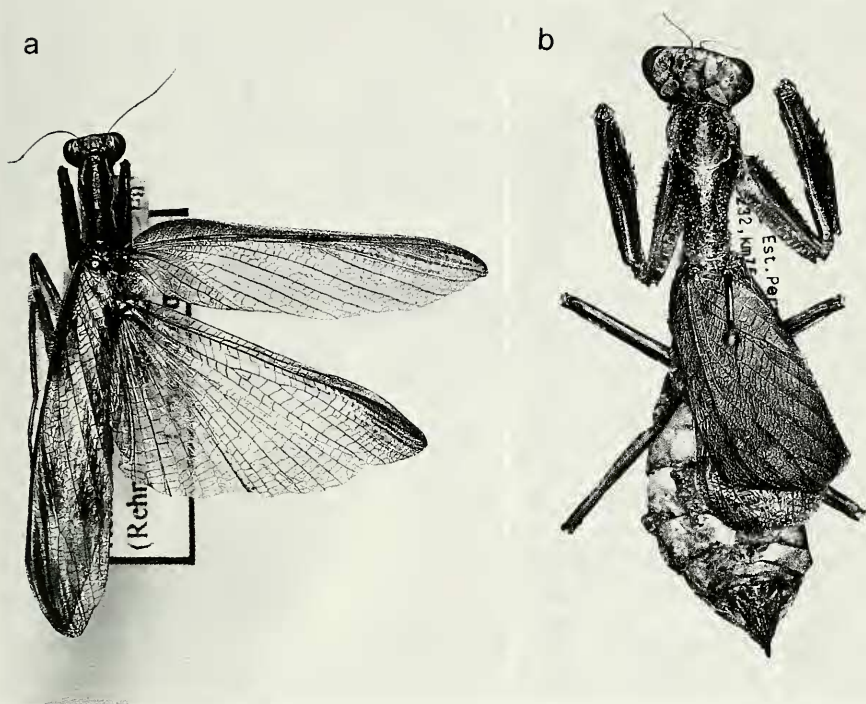


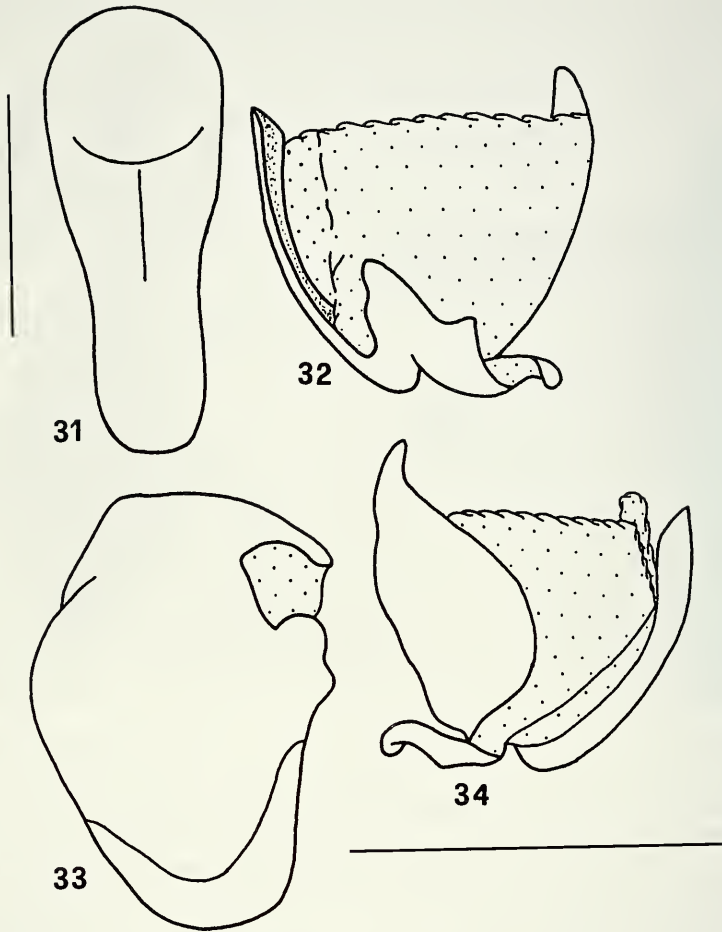
FIG. 30

Rehniella planicephala (Rehn): a, male; b, female.

anterior coxae extending well beyond the posterior margin of pronotum, with weakly recurved spines; inner surface with a series of small tubercles, ivory in colour, and of various sizes. Anterior femora robust; superior margin smooth; external margin with 6 spines; internal margin with 13 spines, with a small ivory callouses at base of big spines. Anterior tibiae with 17-18 external spines and 14 internal spines. Mid and hind legs rather robust; smooth in female, very hirsute in male. Hind wing well developed, extending well beyond the apex of abdomen in male, short in female. Costal area, and a part of discoidal area of tegmina in the male opaque with numerous hyaline windows. Metathoracic wing hyaline, with numerous horizontal opaque strips.

Abdomen- abdomen cylindrical; supranal plate triangular; cerci cylindrical, last one subconical.

Male copulatory apparatus- well sclerified. Ventral phallomere (Fig. 32) without distal processes. Left phallomere (Figs 33,34) with a membranous phalloid apophysis; dorsal lamina well developed; ventral lamina reduced in median part, with long and narrow lateral process that derives from left posterior angle of ventral lamina.



Figs 31-34

Rehniella planicephala (Rehn) male: 31, pronotum; 32, ventral phallomere; 33, ventral view of the left phallomere; 34, dorsal view of the left phallomere. Scale bars: 31= 5 mm; 32, 33, 34 = 2 mm.

REMARKS. This genus is very similar to *Metriomantis* and the most substantial differences concern: the shape of the pronotum (Figs 8-10, 31) that in *Rehniella* is more robust, enlarging in front and with the dorsal surface scattered of small tubercles; the shape of the ventral lamina of left phallomere (Figs 22-28, 33) that in *Rehniella* is reduced in median part and with a long, narrow lateral process.

Rehniella planicephala (Rehn, 1916) (nov. comb.)*Metriomantis planicephala* Rehn, 1916 42: 259.

Holotype female, Ceará Mirim, State of Rio Grande do Sul, Brazil (Stanford Expedition: leg. W. Mann, ANSP).

Allotype male, same data as the type (ANSP).

Additional material examined. Rio Grande, Bahia (Brazil) 30.XII.1907 1 male (leg. Haseman, ANSP); Bahia; Feira de Santana 12.III.1981, 3 males (leg. Roppa, Carbonell, Roberts, ANSP); Bahia, 800 m, 17-19.XI.1974, 1 male (Roberts, Carbonell, ANSP); Est. Pernambuco Br 232, Km 75, cerca de Gravatã, X.1994, 2 females (leg. M. S. Souza, C. S. Carbonell, FSRM).

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